



Date: 30-09-2024
marks : 80
SCIENCE (086)

Term 1 (2024-25)
GRADE: X
Time: 3 hours

Max

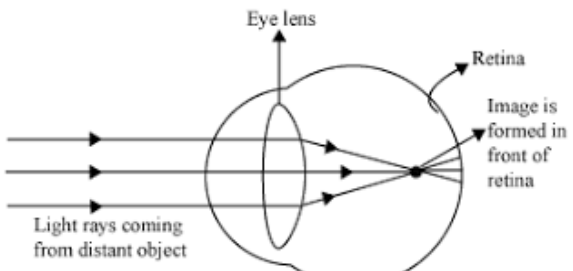
General Instructions:

- i. This question paper consists of 39 questions in 5 sections.
- ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
- iii. Section A consists of 20 objective type questions carrying 1 mark each.
- iv. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
- v. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
- vi. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
- vii. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

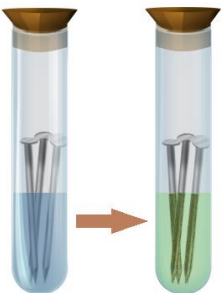
Section-A		
	Select and write the most appropriate option out of the four options given for each of the questions from 1 - 20. There is no negative mark for an incorrect response.	
1	The plaster of Paris is prepared from: (a) limestone (b) Slaked lime (c) quicklime (d) gypsum	1
2	The electronic configuration of three elements X, Y, and Z are as follows: X=2,8,6 Y=2,8,2, Z=2,8,4 two elements will combine to form an ionic compound and the correct formula is:- (a) XY (b)YZ	1

	(c)XZ ₃ (d)Y ₂ Z	
3	Baking soda is a mixture of (a) sodium carbonate and acetic acid (b) sodium carbonate and tartaric acid (c) sodium hydrogen carbonate and tartaric acid (d) sodium hydrogen carbonate and acetic acid.	1
4	Calcium oxide reacts vigorously with water to produce slaked lime. CaO(s) + H ₂ O(l) → Ca(OH) ₂ (aq) This reaction can be classified as (A) Combination reaction (B) Exothermic reaction (C) Endothermic reaction (D) Oxidation reaction Which of the following is the correct option? (a) (A) and (C) (b) (C) and (D) (c) (A), (C) and (D) (d) (A) and (B)	1
5	A non-metal that exists as a liquid at room temperature. a) Na b)Br c)Hg d)Au	1
6	Which of the following is formed as a by-product of the Chlor-Alkali process:- (a)HCl (b)HF (c)Cl ₂ (d)NaCl	1
7	Respiration is a/an: (a) endothermic reaction (b) exothermic reaction (c) decomposition reaction (d) displacement reaction	1
8	The glycolysis process occurs in which part of the cell? (a) Cytoplasm (b) Nucleus (c) Mitochondria (d) Chloroplast	1
9	Roots of plants are: (a) positively geotropic (b) negatively geotropic (c) positively phototropic (d) None of these	1

10	Breathing is controlled by which part of the brain? (a) Cerebrum (b) Cerebellum (c) Hypothalamus (d) Medulla oblongata	1
11	Receptors are usually located in sense organs. Gustatory receptors are present in (a) tongue (b) nose (c) eye (d) ear	1
12	A sportsman, after a long break of his routine exercise, suffered muscular cramps during a heavy exercise session. This happened due to: (a) lack of carbon dioxide and formation of pyruvate. (b) presence of oxygen and formation of ethanol. (c) lack of oxygen and formation of lactic acid. (d) lack of oxygen and formation of carbon dioxide.	1
13	The power of a lens of focal length 25 cm is (a) 0.04 D (b) 0.25 D (c) 2.5 D (d) 4.0 D	1
14	The SI unit of electric charge is (a) ampere (b) volt (c) ohm (d) coulomb	1
15	Which of the following statements is true for an amphoteric oxide? (a) It reacts only with acid and does not form water. (b) It reacts with acid as well as base to form salt and hydrogen gas. (c) It reacts with both acid as well as base to form salt and water. (d) It reacts only with the base and does not form water.	1
16	Which part of the nephron allows the selective reabsorption of useful substances like glucose, amino acids, salts, and water into the blood capillaries? (a) Tubule (b) Glomerulus (c) Bowman's capsule (d) Ureter	1
	Question No. 17 to 20 consist of two statements – Assertion (A) and Reason (R).	

	<p>Answer these questions by selecting the appropriate option given below:</p> <p>(a) Both A and R are true, and R is the correct explanation of A.</p> <p>(b) Both A and R are true, and R is not the correct explanation of A.</p> <p>(c) A is true but R is false.</p> <p>(d) A is false but R is true.</p>	
17	<p>Assertion(A): Green fumes are produced when lead nitrate is heated.</p> <p>Reason(R): Nitrogen dioxide gas is produced as a by-product due to the decomposition of lead nitrate.</p>	1
18	<p>Assertion(A): The purpose of making urine is to filter out undigested food from the intestine.</p> <p>Reason(R): Kidneys filter the waste and produce urine.</p>	1
19	<p>Assertion(A): Concave mirrors are used in searchlights</p> <p>Reason (R): In concave mirrors, the image formed is always virtual</p>	1
20	<p>Assertion(A): The brain plays a secondary role in reflex action when our hand touches a hot plate.</p> <p>Reason(R): In reflex action, the stimulus received by the spinal cord sends the response. The action is registered in the cerebral brain just for memory</p>	1
<p>Section-B</p> <p>Question No. 21 to 26 are very short answer questions</p>		
21	Write the names of the products formed when zinc reacts with NaOH. Also, write the balanced chemical equation for the reaction involved. Write a test to confirm the presence of the gas evolved during this reaction.	2
22	Which gland secretes a hormone when the blood sugar rises? Name the juices released by this organ.	2
23	What are phytohormones? Name any two phytohormones.	2
24	<p>i) Draw a labelled ray diagram to show the path of a ray of light incident obliquely on one face of a glass slab</p> <p>ii) If the speed of light in vacuum is 3×10^8 m/s, find the absolute refractive index of a glass slab in which light travels with a speed of 2×10^8 m/s.</p>	2
25	 <p>i) Identify the defect of vision shown.</p> <p>ii) List its two causes.</p>	2

	iii) Name the type of lens used for the correction of this defect. OR i) What is dispersion of white light? ii) Draw a ray diagram to show the dispersion of white light by a glass prism.	
26	What are the strategies of plants to get rid of their wastes?	2
Section-C Question No. 27 to 33 are short answer question		
27	Complete and balance the following chemical equations : (i) $\text{NaOH}_{(aq)} + \text{Zn}_{(s)} \rightarrow$ (ii) $\text{CaCO}_{3(s)} + \text{H}_2\text{O}_{(l)} + \text{CO}_{2(g)} \rightarrow$ (iii) $\text{HCl}_{(aq)} + \text{H}_2\text{O}_{(l)} \rightarrow$	3
28	a) Sometimes the pH of our mouth gets lower than 5.5. Why? b) A basic salt X is obtained by heating baking soda, followed by crystallisation. Identify X and state its two industrial uses. c) Why do copper sulphate crystals turn white on heating ?	3
29	(i) What is the role of HCl in our stomach? (ii) What is emulsification of fats? (iii) Which protein digesting enzyme is present in pancreatic juice?	3
30	Which animal or plant hormone is associated with the following: (i) Increased sugar level in blood. (ii) Changes at puberty in boys (iii) Inhibits growth of plants. (iv) Rapid development of fruits (v) Dwarfism (vi) Goitre	3
31	A concave mirror is used for image formation for different positions of an object. What inferences can be drawn about the following when an object is placed at a distance of 10 cm from the pole of a concave mirror of focal length 15 cm? (i) Position of the image (ii) Size of the image (iii) Nature of the image (iv) Draw a ray diagram to justify your answers.	3
32	An object 6 cm in size is placed at 50 cm in front of a convex lens of focal length 30 cm. At what distance from the lens should a screen be placed in order to obtain a sharp image of the object? Find the nature and size of the image. Also draw a ray diagram to show the image formation in this case.	3
33	(i) Define Ohm's law	3

	(ii) Draw a schematic diagram of an electric circuit in which 2 cells, an electric bulb, a plug key and an ammeter are connected in series.	
Section-D		
Question No. 34 to 36 are long answer questions		
34	a) Why is sodium kept immersed in kerosene oil? b) c) Illustrate the formation of aluminium chloride by electron transfer.	1+2+2
35	a)What is lymph? How is the composition of lymph different from blood plasma? What is the direction of its flow? List two functions of lymphatic system. b)The upward movement of water normally requires a pump in our houses, but in tall trees water rises up without any external support. Explain the mechanism	5
36	(i) Explain the formation of a rainbow in the sky with the help of a diagram. (ii) Why is the colour of the clear sky blue?	5
SECTION - E		
Question No. 37 to 39 are case-based/data-based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.		
37	<p>When an iron nail is dipped in copper sulphate solution, a brown coating of copper is formed on the surface of the iron and the colour of the copper sulphate solution changes from blue to light green.</p>  <p>a) Why does the colour of copper sulphate change when an iron nail is kept in it? Justify your answer. b) What would happen if a copper nail was dipped in iron sulphate solution instead? Justify your answer.</p>	4
38	Nastic movements in plants are not directional movements. They are not dependent on the stimulus and are growth independent. For example, the leaves of a touch me not plant (<i>Mimosa pudica</i>), fold up immediately when touched. These kinds of changes occur due to the changes in the amount of water in the leaves. Depending on the quantity, they either swell up or shrink. Plant hormones or phytohormones are responsible for the control and coordination of	4

	<p>plants. There are different types of hormones, which affect the growth of a plant. Phytohormones are chemical compounds which are released by stimulated cells. These hormones are diffused around the plant cells. They have a role in the cell division, cell enlargement, cell differentiation, fruit growth, falling of leaves, ripening of fruits, ageing of plants etc.</p> <p>(i) Name the phenomenon called for the movement in growth of plants.</p> <p>(ii) What do you mean by nastic movement ?</p> <p>(iii) What are the different types of harmonies of plants ?</p> <p>(iv) The plant hormone help in the cell growth at the shoot tips by elongating the cells and help in the growth process is :</p>	
39	<p>The spherical mirror forms different types of images when the object is placed at different locations. When the image is formed on screen, the image is real and when the image does not form on screen, the image is virtual. When the two reflected rays meet actually, the image is real and when they appear to meet, the image is virtual.</p> <p>A concave mirror always forms a real and inverted image for different positions of the object. But if the object is placed between the focus and pole. the image formed is virtual and erect.</p> <p>A convex mirror always forms a virtual, erect and diminished image. A concave mirror is used as doctor's head mirror to focus light on body parts like eyes, ears, nose etc., to be examined because it can form erect and magnified image of the object. The convex mirror is used as a rear view mirrors in automobiles because it can form an small and erect image of an object.</p> <p>(i) When an object is placed at the centre of curvature of a concave mirror, the image formed is</p> <p>(a) larger than the object</p> <p>(b) smaller than the object</p>	1+1+1+1

(c) same size as that of the object

(d) highly enlarged.

(ii) No matter how far you stand from a mirror, your image appears erect. The mirror is likely to be

(a) plane

(b) concave

(c) convex

(d) either plane or convex.

(iii) A child is standing in front of a magic mirror. She finds the image of her head bigger, the middle portion of her body of the same size and that of the legs smaller. The following is the order of combinations for the magic mirror from the top.

(a) Plane, convex and concave

(b) Convex, concave and plane

(c) Concave, plane and convex

(d) Convex, plane and concave

(iv) To get an image larger than the object, one can use

(a) convex mirror but not a concave mirror

(b) a concave mirror but not a convex mirror

(c) either a convex mirror or a concave mirror

(d) a plane mirror.

THE END